

Mid-America Collaborative for Alternative Fuels Implementation

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www.metroenergy.org

Metropolitan Energy Center

816-531-7283

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Metropolitan Energy Center
June 19, 2014

Metropolitan
ENERGY CENTER

ID#: TI042

Timeline

- Start: Feb 1, 2013
- End: Mar 31, 2015
- 40% Complete

Budget

- Total project funding
 - DOE: \$815,000
 - Collaborative: \$0.00
- Spent FY13: \$128,148
- Budget FY14: \$621,852
- 25% Spent (as of 4/15/14)

VT Barriers Addressed

- Availability of alternative fuels and EV charging infrastructure.
- Consumer reluctance to purchase new technologies.
- Lack of technical experience with new fuels and vehicle technologies.

Partners

- Iowa Clean Cities Coalition
- St. Louis Regional Clean Cities
- Nebraska Clean Cities Coalition

Objective: To identify and remedy obstacles to alternative fuel vehicle adoption in regional and statewide markets.

Project Period 1

- Analyze commercial consumers' perceived barriers to deploying alternative fuel technologies.
- Train technicians and technical instructors to work with new fuels and vehicle technologies.
- Using EPA-approved tools, quantify air quality improvements gained with alternative fuel use to inform regional and state implementation plans.

VT Barriers Addressed

- Availability of alternative fuels and EV charging stations.
- Consumer reluctance to purchase new technologies.
- Lack of technical experience with new fuels and vehicle technologies.

Assess Need: Survey Audiences



Develop Barrier Reduction Tools



Conduct Trainings and Technical Assistance



Conduct Marketing, Education and Outreach

Milestones

Mid-America Collaborative for Alternative Fuels Implementation



Policy Initiatives

| | |
|--------|-----------------------------------------------------------|
| Mar 14 | Air Quality Methodology Tool design (Completed) |
| May 14 | Air Quality Methodology completed in Pilot area (Ongoing) |
| Jun 14 | Procurement policy models developed (Ongoing) |

Barrier Reduction Initiatives

| | |
|--------|----------------------------------------------------------------------------------------|
| Dec 13 | Conduct Barriers and Training Needs Assessment (Completed) |
| Mar 14 | Conduct Alternative Fuel / Fleet Market Baseline Assessment (Ongoing) |
| May 14 | Develop Green Fleets Technical Assistance and Certification Program (Delayed--Ongoing) |
| Jan 15 | Peer-to-peer webinars and workshops (Ongoing) |

Safety and Training Initiatives

| | |
|--------|------------------------------------------|
| Jul 14 | Technician instructor training (Ongoing) |
| Oct 14 | First Responder Training (Ongoing) |

Marketplace Development and Outreach Initiatives

| | |
|--------|-------------------------------------------------|
| Jun 14 | Conduct Interstate Corridors Planning (Delayed) |
| Dec 15 | NE alternative-fuels workshops (Ongoing) |

Assess Need

- Surveys
 - Tech Programs
 - Stakeholders
 - PACE
 - Fleets
- Advisory Groups
- Meetings

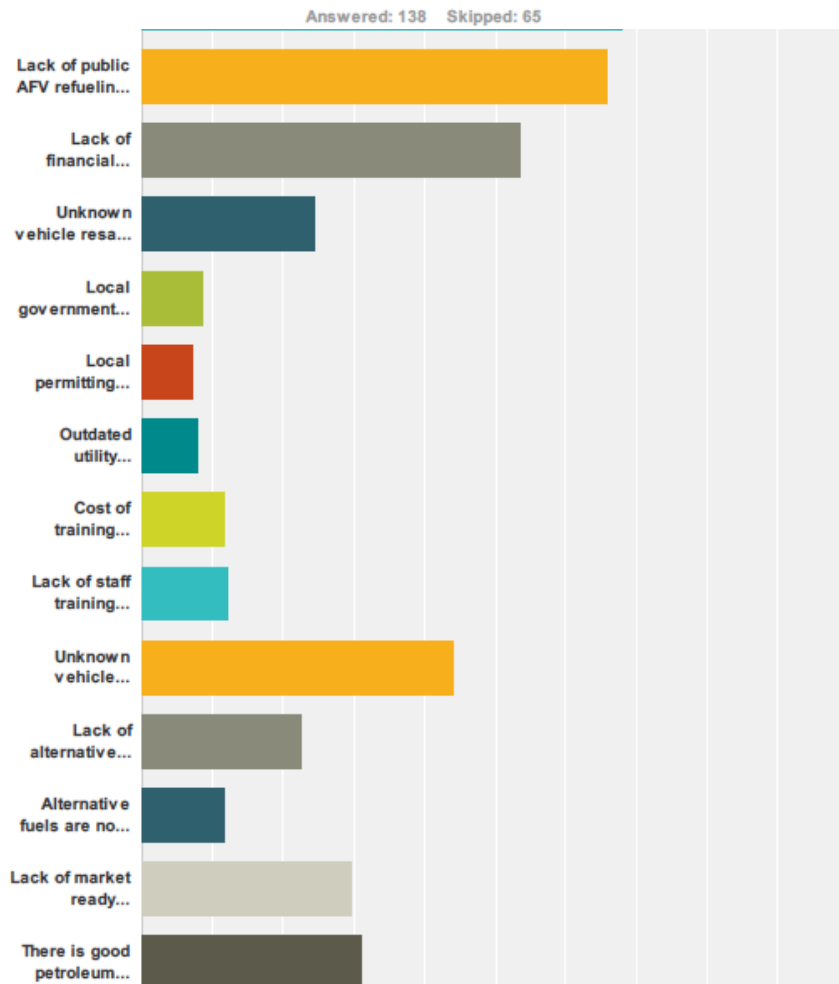
VT Barriers Addressed

- Consumer reluctance to purchase new technologies.
- Lack of technical experience with new fuels and vehicle technologies.

Understanding the opinions, attitudes and needs of stakeholders makes best use of limited resources.

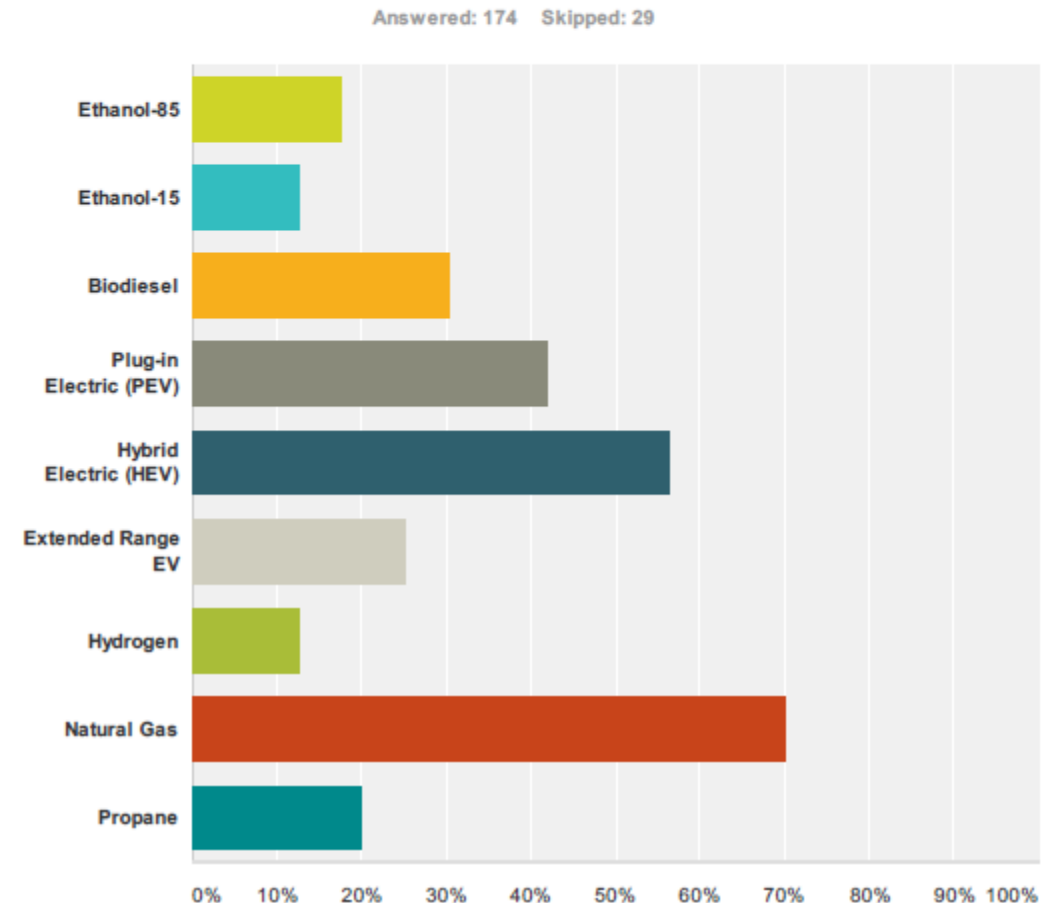
Assess: Stakeholder Opinion Survey

Q25 In your opinion, what items below best describe the barriers limiting the adoption of alternate fuels and vehicles? Select all that apply.



Mid-America Collaborative for Alternative Fuels Stakeholder Survey

Q8 Which fuel technologies do you consider the MOST likely to increase market share in the next five (5) years? Select up to three (3) choices:



Training



- Technician Instructor Training
- First Responder Training
- Alternative Fuel Codes Summit

VT Barriers Addressed

- Lack of technical experience with new fuels and vehicle technologies.



Train-the-trainer programs increase access by vehicle and fuel system technicians to local and regional expertise on alternative fuels.

Develop Tools

- AQ Modeling Tool
- *Mid-America Green Fleets* Technical Assistance Program



VT Barriers Addressed

- Availability of alternative fuels and EV charging infrastructure.
- Consumer reluctance to purchase new technologies.
- Lack of technical experience with new fuels and vehicle technologies.

Tools and technical assistance help decision-makers understand benefits of alternative fuels and increase adoption and deployments.

Engaging cognizant agencies (local and state) in project design and implementation increases the likelihood they will adopt policies favorable to alternative fuels.

Develop Tools: AQ Modeling Tool

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P |
|----|----------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|------------------------------------------------------------------|---|---|---|---|---|
| 1 | MEC: Alternative Fuels for Air Quality Implementation Planning Tool | | | | | | | | | | Cell Color Coding Legend | | | | | |
| 2 | Main Inputs | | | | | | | | | | <div>Required User Input</div> <div>Total EV %</div> | | | | | |
| 3 | <i>Last Updated: 6/13/14</i> | | | | | | | | | | <div>Total EV not 100%</div> <div>Error with % Penetration</div> | | | | | |
| 4 | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | |
| 7 | Step 1. Please select alternative fuel to be used: | | | | | | | | | | EV | | | | | |
| 8 | | | | | | | | | | | | | | | | |
| 9 | Step 2. If EV selected, please select fleet penetration: | | | | | | | | | | BEV | | | | | |
| 10 | | | | | | | | | | | 100% | | | | | |
| 11 | | | | | | | | | | | PHEV10 | | | | | |
| 12 | | | | | | | | | | | 0% | | | | | |
| 13 | | | | | | | | | | | PHEV40 | | | | | |
| 14 | | | | | | | | | | | 0% | | | | | |
| 15 | | | | | | | | | | | Must equal 100% | | | | | |
| 16 | | | | | | | | | | | 100% | | | | | |
| 17 | | | | | | | | | | | | | | | | |
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| 37 | | | | | | | | | | | | | | | | |

| Step 3. | | Step 4. | | | |
|------------------------------------------------------------------|----------------------------|------------------------------------------------------------------------------------------------------------|------|------|------|
| Please choose which conventional fuel to replace in table below. | | Please input expected Alt Fuel penetration (percentage of fleet vehicles or miles traveled) for each year. | | | |
| MOVES Use Type | Conventional Fuel Replaced | 2010 | 2020 | 2030 | 2040 |
| 11. Motorcycle | Gasoline | 0% | 0% | 0% | 0% |
| 21. Passenger Car | Mixed | 0% | 0% | 0% | 0% |
| 31. Passenger Truck | Mixed | 0% | 0% | 0% | 0% |
| 32. Light Commercial Truck | Mixed | 0% | 0% | 0% | 0% |
| 41. Intercity Bus | Diesel | 0% | 0% | 0% | 0% |
| 42. Transit Bus | Mixed | 0% | 0% | 0% | 0% |
| 43. School Bus | Mixed | 0% | 0% | 0% | 0% |
| 51. Refuse Truck | Mixed | 0% | 0% | 0% | 0% |
| 52. Single-Unit Short-Haul Truck | Mixed | 0% | 0% | 0% | 0% |
| 53. Single-Unit Long-Haul Truck | Mixed | 0% | 0% | 0% | 0% |
| 54. Motor Home | Mixed | 0% | 0% | 0% | 0% |
| 61. Combination Short-Haul Truck | Mixed | 0% | 0% | 0% | 0% |
| 62. Combination Long-Haul Truck | Diesel | 0% | 0% | 0% | 0% |

| | Baseline Emissions in Tons/yr | | | | Scenario Emissions in Tons/yr | | | | Emission Reductions in Tons/yr | | | |
|-------|-------------------------------|---------|---------|---------|-------------------------------|---------|---------|---------|--------------------------------|------|------|------|
| | 2010 | 2020 | 2030 | 2040 | 2010 | 2020 | 2030 | 2040 | 2010 | 2020 | 2030 | 2040 |
| NOx | 24,058.7 | 7,869.8 | 6,193.3 | 6,953.4 | 24,058.7 | 7,869.8 | 6,193.3 | 6,953.4 | - | - | - | - |
| PM10 | 876.5 | 282.5 | 228.2 | 255.9 | 876.5 | 282.5 | 228.2 | 255.9 | - | - | - | - |
| PM2.5 | 840.9 | 266.3 | 212.8 | 238.4 | 840.9 | 266.3 | 212.8 | 238.4 | - | - | - | - |
| VOC | 3,163.0 | 1,067.7 | 894.9 | 1,022.0 | 3,163.0 | 1,067.7 | 894.9 | 1,022.0 | - | - | - | - |

| Glossary of Alternative Fuels | | | | | | | | | | | | |
|----------------------------------------------------------|-------------------------------------------|--|--|--|--|--|--|--|--|--|--|--|
| B20 | 20% Biodiesel | | | | | | | | | | | |
| B50 | 50% Biodiesel | | | | | | | | | | | |
| B100 | 100% Biodiesel | | | | | | | | | | | |
| CNG | Compressed Natural Gas | | | | | | | | | | | |
| E85 | 85% Ethanol | | | | | | | | | | | |
| LPG | Liquified Petroleum Gas (Propane) | | | | | | | | | | | |
| EV | Electric Vehicle. Includes the following: | | | | | | | | | | | |
| BEV - Battery Electric Vehicle | | | | | | | | | | | | |
| PHEV10 - Plug-in Hybrid Electric Vehicle - 10 mile range | | | | | | | | | | | | |
| PHEV40 - Plug-in Hybrid Electric Vehicle - 40 mile range | | | | | | | | | | | | |

Project Accomplishments & Progress

Mid-America Collaborative for Alternative Fuels Implementation



Outreach & Marketing

- Webinars
- Stakeholder Meetings & Workshops in NE
- Alternative Fuel Codes Summit

VT Barriers Addressed

- Availability of alternative fuels and EV charging infrastructure.
- Consumer reluctance to purchase new technologies.
- Lack of technical experience with new fuels and vehicle technologies.



Outreach is critical to increasing availability and adoption of alternative fuels.

Sub-recipients & Partners

- St. Louis Regional Clean Cities
- Nebraska Clean Cities Coalition
- Iowa Clean Cities Coalition

Vendors

- ASG Renaissance
- Clean Energy Coalition
- ICF International
- Iowa Biodiesel Board
- Mid-America Regional Council

Outreach and Other

- Kansas City Regional Clean Cities Coalition
- Central Kansas Clean Cities Coalition
- State Fire Marshal Offices
- State Air Divisions
- Municipal and Metropolitan Agencies
- Community Colleges & Universities
- Industry and Stakeholder Associations

Remaining Project Activities

- Complete Tools
 - Publish Survey Analyses
 - Publish AQ Tool & Study
 - Mid-America Green Fleets
 - Travel Corridor study
- Outreach & Implementation
 - Technical Trainings
 - Fleet Consultations
 - Stakeholder Webinars
 - Stakeholder Conferences
 - Presentations to local jurisdictions

Related Efforts (outside scope)

- Retailer Education
- Continue presentations to local jurisdictions in 4-state region
- Engage media in Green Fleet results
- Share successes with other Clean Cities Coalitions (encourage replication)

Project Summary

Mid-America Collaborative for Alternative Fuels Implementation



Relevance

- Availability of alternative fuels and EV charging infrastructure.
- Consumer reluctance to purchase new technologies.
- Lack of technical experience with new fuels and vehicle technologies.

Approach

- Assess Need: Survey Audiences
- Develop Barrier Reduction Tools
- Conduct Trainings and Technical Assistance
- Conduct Marketing, Education and Outreach

Collaborations

Continue collaborating with Clean Cities coalitions in IA, KS, MO, NE to engage local and state agencies in tool design and implementation

Accomplishments

- Assessed opinions and needs
- Developed MOVES-compatible AQ emissions tool
- Conducted trainings and workshops
- Planned Alternative Fuels Codes Summit

<http://www.metroenergy.org/index.php/clean-transportation/programs/>

Technical Back-Up Slides

- **Policy Initiatives**

- Air Quality Methodology Tool and Pilot Study
 - St. Louis metro is pilot study area
- Alternative Fuel Codes Conference
 - July 24-25, 2014
 - Kauffman Conference Center, KCMO
- Develop procurement policy models
- Assess state regulations for alternative fuel signage on state roads and interstates

- **Market Development and Outreach Initiatives**

- Interstate Corridors Study
 - Stakeholder Best Practices Peer Exchange
 - Webinars
 - Conduct alternative fuel workshops in Nebraska
- **4-State Effort**
 - Kansas, Missouri, Nebraska, Iowa



- **Safety and Training Initiatives**

- **Increase Access to Alternative Fuels Technical Training**
 - CNG vehicles, CNG fuel systems, propane autogas and biodiesel
 - Held a biodiesel train-the-trainer in Iowa on November 14
- **Alternative Fuel Safety Trainings for First Responders and First Responder Training Schools**
 - Held a training for Iowa State Fire School in February.
 - Working with Missouri Fire Marshal's office to determine best use of resources, assign CEUs to Codes Conference

- **Barrier Reduction Initiatives**

- **Stakeholder Barriers Survey**
 - Analysis report to be published
- **Alternative Fuels in Fleets Survey**
 - Statistically significant survey being conducted by research firm
 - Participation = eligible for free consult
- **Four-State Fuel Retailer Assistance**
 - 2014 PACE Show participation
 - Communicate results of Corridor Study
- **Reciprocal Green Fleets Program**
 - Technical assistance
 - Certification